

SEMICONDUCTOR DEVICES WITH ENLARGED RECESSED GATE ELECTRODES AND METHODS OF FABRICATION THEREFOR

ABSTRACT OF THE DISCLOSURE

A semiconductor device includes a semiconductor substrate having a recess therein. A gate insulator is disposed on the substrate in the recess. The device further includes a gate electrode including a first portion on the gate insulator in the recess and a second reduced-width portion extending from the first portion. A source/drain region is disposed in the substrate adjacent the recess. The recess may have a curved shape, e.g., may have hemispherical or ellipsoid shape. The source/drain region may include a lighter-doped portion adjoining the recess. Related fabrication methods are also discussed.

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